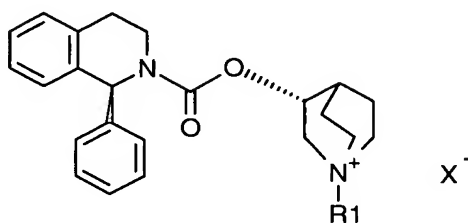


We claim:

1. A quaternary ammonium compound of formula I

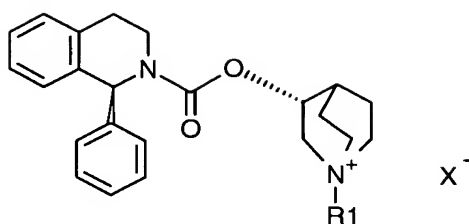


and any stereoisomers thereof, wherein

- $R_1$  is selected from  $C_1$ - $C_6$  alkyl,  $-CH_2-(C_1-C_4$  alkenyl), and  $-CH_2-(C_1-C_6$  alkynyl), each of which is optionally substituted with a group selected from phenyl,  $C_1$ - $C_4$  alkoxy, and hydroxyl; and

$X$  represents an anion of a pharmaceutically acceptable acid.

- The compound of claim 1, wherein  $X$  is selected from the group consisting of the anions of the following acids: tartaric, hydrochloric, hydrobromic, hydroiodic, sulfuric, phosphoric, nitric, citric, methanesulfonic,  $CH_3-(CH_2)_n-COOH$  where  $n$  is 0-4,  $HOOC-(CH_2)_n-COOH$  where  $n$  is 1-4,  $HOOC-CH=CH-COOH$ , and benzoic.
- The compound of claim 1, wherein  $X$  is selected from the group consisting of iodide, bromide, and chloride.
- The compound of claim 1, wherein  $X$  is iodide.
- The compound of claim 1, wherein  $X$  is bromide.
- The compound of claim 1, wherein  $X$  is chloride.
- The compound of claim 1, wherein  $R_1$  is methyl.
- A pharmaceutical composition comprising a therapeutically effective amount of a quaternary ammonium compound of formula I



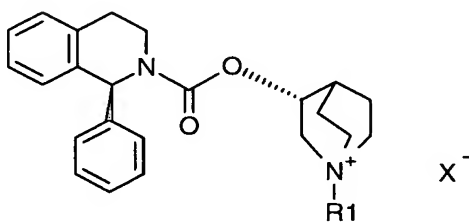
and any stereoisomers thereof, wherein

$R_1$  is selected from  $C_1$ - $C_6$  alkyl,  $-CH_2$ -( $C_1$ - $C_4$  alkenyl), and  $-CH_2$ -( $C_1$ - $C_6$  alkynyl), each of which is optionally substituted with a group selected from phenyl,  $C_1$ - $C_4$  alkoxy, and hydroxyl; and

5         $X$  represents an anion of a pharmaceutically acceptable acid.

9.        The pharmaceutical composition of claim 8, wherein the pharmaceutical composition further comprises a suitable pharmaceutical carrier.

10        10.        The method of treating a mammal for asthma, Chronic Obstructive Pulmonary Disease, allergic rhinitis, and infectious rhinitis, comprising:  
administering a therapeutically effective amount of a quaternary ammonium compound of formula I, having the structure



and any stereoisomers thereof, wherein

15         $R_1$  is selected from  $C_1$ - $C_6$  alkyl,  $-CH_2$ -( $C_1$ - $C_4$  alkenyl), and  $-CH_2$ -( $C_1$ - $C_6$  alkynyl), each of which is optionally substituted with a group selected from phenyl,  $C_1$ - $C_4$  alkoxy, and hydroxyl; and

$X$  represents an anion of a pharmaceutically acceptable acid.